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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,277	06/27/2003	Andrew M. Spencer	200208966-1	8304

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EXAMINER

FLOURNOY, HORACE L

ART UNIT	PAPER NUMBER
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2189

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/609,277	Applicant(s) SPENCER, ANDREW M.	
	Examiner Horace L. Flournoy	Art Unit 2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendments received on 2/06/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,11,15,16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,11,15,16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office action has been issued in response to amendment filed February 6th 2007. Claims 10-11, 15-16, and 18-20 are pending. Applicant's arguments have been carefully and respectfully considered, but they are not entirely persuasive, as will be discussed in more detail below. Accordingly, this action has been made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-11, 15-16, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by **Bruce et al. (U.S. Patent No. 6,000,006 hereafter referred to as Bruce)** with MPCD (Microsoft Computer Dictionary) offered as extrinsic evidence.

Independent Claims

With respect to **independent claims 10 and 20**,

"A method of providing access to stored data, the method comprising receiving a read command that comprises a read address; [Bruce discloses in column 2, lines 12-18, "When a one is encountered when reading re-map table 15, a

separate address re-map table (not shown) is consulted to find the physical address. This address re-map table is typically stored in the last block of each flash device.”] *determining whether data from the read address is buffered in a volatile read buffer; retrieving data from a location in a nonvolatile memory array associated with the read address if the data is not buffered, and buffering the retrieved data in the volatile read buffer; [Bruce discloses in column 4, lines 5-8, “The cache index identifies a location in the cache of the data for the logical address. Thus each entry identifies the location in cache for the data or the location in the flash-memory devices.” See column 3, line 66-column 4, line 8.] responding to the read command with data from the volatile read buffers if the data is buffered; [disclosed, e.g. in the abstract, “When the cache valid bit is set, the data is read or written to a line in the cache pointed to by the cache index. A separate cache tag RAM is not needed. When the cache valid bit is cleared, the data is read from the flash memory block pointed to by the PBA.”] detecting a pending power-down; storing in nonvolatile memory the read address for data buffered in the volatile read buffer; [disclosed, e.g. in column 6, lines 43-50] and restoring the data to the volatile read buffer when power returns. [disclosed, e.g. in column 11, lines 5-18]*

[Note: The examiner has interpreted the independent claim 20, under 35 U.S.C. 112, 6th paragraph. According to the applicant’s specification, the examiner notes that the means or system/structure for practice of the invention disclosed in claim is anticipated by Bruce. Therefore, the rejection parallels the rejection to independent claim 10.]

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With respect to **independent claim 15**,

"A digital device that comprises: a memory having a buffered memory interface with one or more read buffers [Bruce discloses in column 2 line 65 - column 3, line 3, "Each entry in the plurality of entries has a physical-block-address field that contains a physical block address of a block in an array of flash-memory devices. Each flash-memory device contains non-volatile storage cells that retain data when a power supply is no longer applied to the flash-memory device."] and a processor coupled to the memory device and configured to retrieve stored information from the memory [See FIG. 4: "Host Requests" See column 6, lines 12-15] said processor being programmed to cause the memory to receive a power down command before electrical power is removed from the memory, [disclosed, e.g. in column 6, lines 43-50] and the buffered memory interface to responsively store in a nonvolatile memory one or more addresses of memory locations that have been recently accessed." [Bruce discloses in column 13, lines 31-34, "A cache of the re-map table can be used rather than a full table when the access times for various blocks can vary. Rather than storing all entries for all flash blocks in RAM, only the most-recently-used entries can be stored." See also column 12, lines 44-50.]

Dependent Claims

With respect to **claim 11**,

"The method of claim 10, wherein said restoring comprises accessing the nonvolatile memory to retrieve the read address associated with the read buffer;

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and filling the read buffer with data from a memory array, beginning with data associated with the read address.” [disclosed, e.g. in column 11, lines 5-18]

With respect to **claim 16**,

“The device of claim 15, wherein the memory interface is further configured to reload the one or more read buffers with data in accordance with information from the nonvolatile memory when power returns” [disclosed, e.g. in column 11, lines 5-18]

With respect to **claim 18**,

“The device of claim 15, wherein the one or more read buffers comprise: a plurality of read buffers each associated with a different region of the memory [“cache index field” disclosed in column 4, lines 1-8] and configured to buffer only data for read operations on an associated region.” [disclosed in column 3, line 66 –column 4, line 8]

With respect to **claim 19**,

“The device of claim 18, wherein the memory interface further comprises: an interface control module that is configured to receive read commands specifying a memory address, wherein the interface control module is coupled to a nonvolatile memory array to conduct read operations to satisfy the read commands and to prepare read buffers to satisfy anticipated read commands; [disclosed in the rejection to independent claim 7 below] and wherein the

memory further comprises: an error correction code (ECC) decoder coupled between the nonvolatile memory array and the one or more read buffers."

[disclosed, e.g. in column 10, lines 16-28]

ARGUMENTS CONCERNING PRIOR ART REJECTIONS

1ST POINT OF ARGUMENT:

With respect to the arguments on page 6 of the applicant's remarks, the examiner respectfully disagrees that Bruce fails to teach or suggest "a buffer interface to **responsively** store recently used addresses in a nonvolatile memory" as found in independent claim 15. Column 13, lines 31-34 teach that Bruce stores most-recently-used entries (recently used addresses) in a nonvolatile memory (see elements 24, 26 and 28 of FIG. 4). The examiner believes that this teaching by Bruce anticipates the claim language of "a buffer interface to **responsively** store recently used addresses in a nonvolatile memory". Furthermore, FIG. 4 also teaches "Host Requests" which anticipate the claim language of "a processor issues..." The arguments with respect to Tsunoda are hereby moot because of the cancelled claims.

2nd POINT OF ARGUMENT:

With respect to the arguments on page 7 of the applicant's remarks with respect to claim 10, the examiner respectfully disagrees that Bruce fails to teach or suggest "detecting of a pending power down and storage, in a nonvolatile memory, a read address for data buffered in a volatile read buffer". Column 6, lines 43-50, as stated above,

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anticipates the claim language of this limitation. The arguments with respect to Tsunoda are moot because of the cancelled claims.

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Direction of Future Correspondences

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Horace L. Flournoy whose telephone number is (571) 272-2705. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:30 PM (ET).

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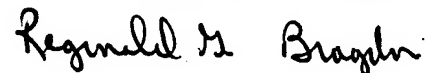
Important Note

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald G. Bragdon can be reached on (571) 272-4204. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 746-7239.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Reginald G. Bragdon



Supervisory Patent Examiner
Technology Center 2100

HLF
April 12th, 2007